SERVICE MANUAL & PARTS LIST (without price)

SF-5590SY/5790SY/5990SY
SF-5590SY PLUS/5790SY PLUS/ 5990SY PLUS (ZX-455)

SEP. 1997

SF-5590SY

INDEX

CASIO

CONTENTS

1. SPECIFICATIONS 3
2. GENERAL GUIDE 5
3. DATA COMMUNICATIONS 12
   - 3-1. DATA TRANSMISSION FROM A UNIT TO ANOTHER UNIT 13
   - 3-2. DATA TRANSMISSION BETWEEN A UNIT AND PERSONAL COMPUTER USING FA-128 13
4. OPERATION CHECK 15
5. ERROR MESSAGES 18
6. SCHEMATIC DIAGRAMS
   - 6-1. MAIN PCB ASS'Y (A342054)-(1/4) 19
   - 6-1. MAIN PCB ASS'Y (A342054)-(2/4) 20
   - 6-1. MAIN PCB ASS'Y (A342054)-(3/4) 21
   - 6-1. MAIN PCB ASS'Y (A342054)-(4/4) 22
   - 6-2. KEYBOARD PCB ASS'Y (A342055)-(1/3) 23
   - 6-2. KEYBOARD PCB ASS'Y (A342055)-(2/3) 24
   - 6-2. KEYBOARD PCB ASS'Y (A342055)-(3/3) 25
7. LSI PIN FUNCTION 26
8. DISASSEMBLY 27
9. PARTS LIST 30
10. EXPLODED VIEW 32

1. SPECIFICATIONS

Model: SF-5590SY/SF-5790SY/SF-5990SY

* PC LINK software and cable for data transmission (FA-128) are added to SF-5590SY PLUS/5790SY PLUS/5990SY PLUS. See to 9. PARTS LIST.

Main Modes:

Telephone Directory, Memo, Schedule Keeper, To Do, Expense Manager, Reminder, Calendar, Home Time, World Time, Calculator, Conversion (metric/currency) and Game (Poker/Blackjack)

Data storage:

Storage and recall of telephone, memo, schedule, to do, expense, reminder data; calendar display; editing; memory status display

Clock:

World time; reminder alarm; schedule alarm; daily alarm; accuracy under normal temperatures: ±3 seconds per day

Calculation:

12-digit arithmetic calculations; independent memory; percentages; square roots; other mixed calculations

General:

Display element: 26-column × 8-line LCD

Memory capacity:
SF-5590SY: 128 KB
SF-5790SY: 256 KB
SF-5990SY: 512 KB

Main component: LSI

Power supply:
Main: Two AAA-size alkaline batteries (Type: LR03 (AM4))
Back-up: One CR2032 lithium battery

Battery life:
Main:
- Approximately 130 hours of continuous display only in Telephone Directory Mode.
- Approximately 90 hours with 55 minutes of continuous display only and 5 minutes of processing operation per hour.
- Approximately 80 hours with 55 minutes of continuous display only and 5 minutes of processing operation per hour, plus 3 minutes of backlight operation per hour during continuous display only period.

Back-up: Approximately 5 years if main batteries are replaced as soon as they become weak.
Approximately 2 years if dead main batteries are left in the unit.

Power consumption: 0.25 W

Current consumption:

Main (Input voltage = 3.0 V):	Telephone top menu (Backlight doesn't shine)- 4.3 mA (TYP.)/5.3 mA (MAX.) Telephone top menu (Backlight shine)- 27 mA (TYP.)/38 mA (MAX.) OFF (Using Mask ROM: regular)- 90 μA (TYP.)/130 μA (MAX.) OFF (Using Flash ROM: irregular)- 120 μA (TYP.)/160 μA (MAX.)
Back-up (Input voltage = 3.0 V):	2.4 μA (TYP.)/10 μA (MAX.)

Auto power off: Approximately 3 minutes after last key operation

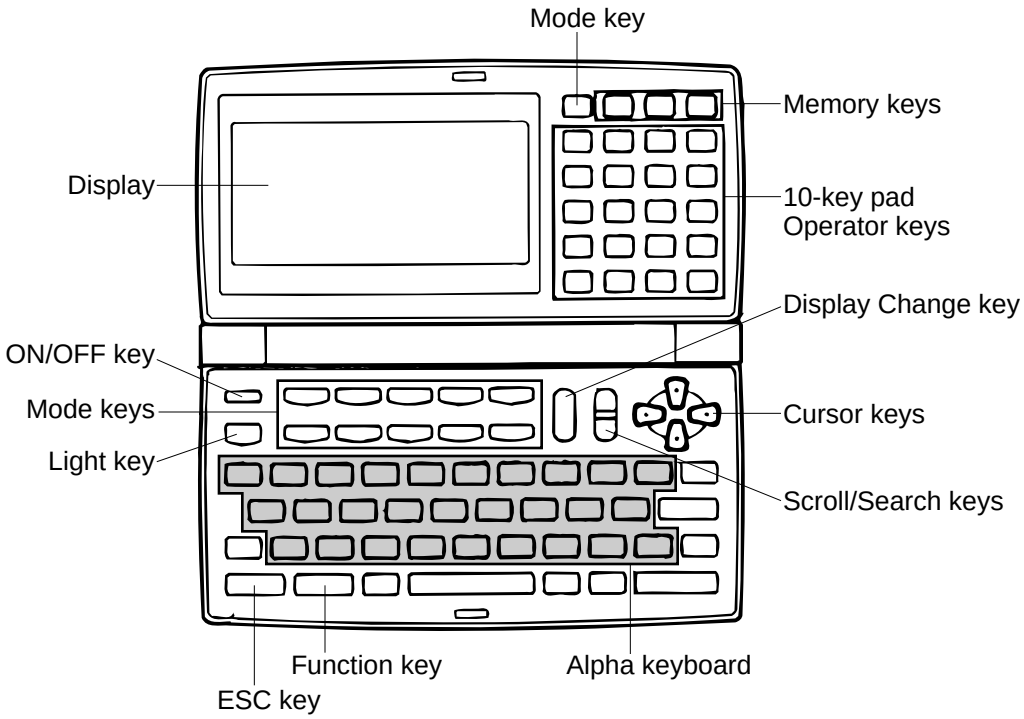
Operating temperature: 0 °C ~ 40 °C (30 °F ~ 104 °F)

Dimensions:

Unfolded:	8.8H × 163 W × 169D mm (3/8"H × 6 7/16"W × 6 5/8"D)
Folded:	21.5H × 163W × 91.5D mm (7/8"H × 6 7/16"W × 3 5/8"D)

Weight: Approximately 250 g (8.8 oz) including batteries

2. GENERAL GUIDE



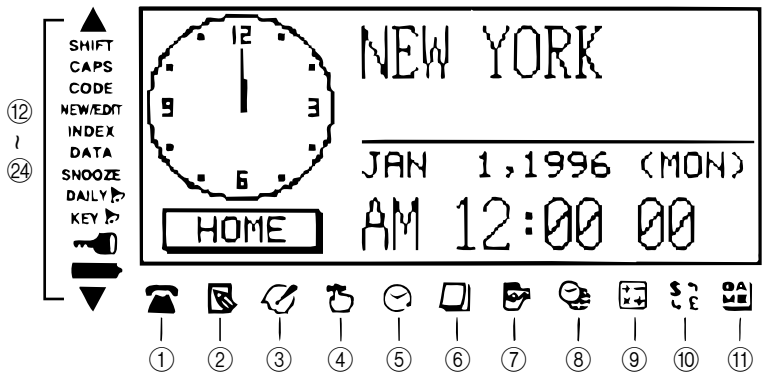
■ Display

When lighting is dim, you can turn on an EL (electro-luminescent) backlight for easier viewing.

To turn on the EL backlight

There are two ways to turn on the backlight of the display.
Pressing **LIGHT** causes the backlight to turn on for about 15 seconds, and then turn off automatically.
Pressing **SHIFT** and then **LIGHT** also turns on the backlight, but in this case the backlight stays on as long as you keep performing key operations on the Digital Diary . The backlight turns off automatically if you do not perform any key operation for about 15 seconds.
Leaving the backlight on for long periods greatly reduces battery life!
You can manually turn the backlight off by pressing **LIGHT** again.
Failure of the backlight to turn on indicates low battery power. Replace batteries as soon as possible.

Display Indicators



① Telephone Directory Mode
② Memo Mode
③ To Do Mode
④ Reminder Mode
⑤ Schedule Keeper Mode
⑥ Calendar Mode
⑦ Expense Manager Mode
⑧ Home Time/World Time Mode
⑨ Calculator Mode
⑩ Conversion Modes
⑪ Game Modes
⑫ Indicates data above
⑬ SHIFT key operation
⑭ Upper-case input
⑮ CODE key operation
⑯ NEW/EDIT screen
⑰ Index display
⑱ Data display
⑲ Snooze feature activated
⑳ Daily alarm on
㉑ Key sound on
㉒ Memory locked
㉓ Low battery warning
㉔ Indicates data below

■ All-Reset

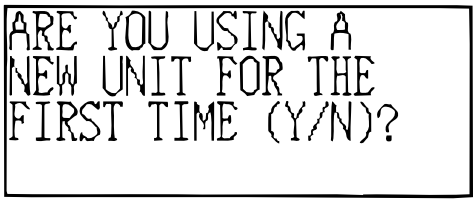
Use the following procedure to reset the unit to its initial settings.

Important!

- Do not use a very sharp pencil or other object to press the START button.
- Be sure to reset the unit before using it for the first time.
- Perform the reset operation only after main batteries and back-up battery are correctly installed.
- Be sure to press the START button (page 9) after loading main batteries for the first time or if the previous set of batteries went dead.

To start the all-reset operation

1. Turn power off.
2. Press the START button on the back of the Digital Diary with a thin, pointed object.

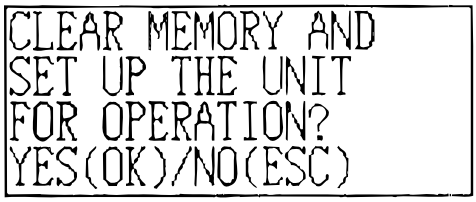


3. Now you should press **Y** for “yes” or **N** for “no” in accordance with the conditions described on the next page.

When to press Y for “yes”

- When this is the first time you are using the unit.
- When you want to reset the unit and clear all data and settings.
- When you are resetting the unit after a data error (page 18).

1. Press **Y** in response to the message that appears on the display when you start the all-reset operation.



2. Press **OK** to reset the Digital Diary or **ESC** to abort.
   - At this time the message “SET TIME!” appears.
   - After about two seconds, the Home Time screen appears.
3. Press **FUNC**, select “Time set”, and then use the procedure on User’s Guide (page 18) to set the Home Time.
   - If you turn power off without setting the Home Time, the “SET TIME!” message appears the next time you turn power on. The Digital Diary will not operate properly until you set the Home Time.

When to press N for “no”

- After replacing the main batteries.
- When you are not resetting the unit to clear all data and settings.
- When you are not resetting the unit after a data error (page 18).

1. Press **N** in response to the message that appears on the display when you start the all-reset operation.
   - At this time the message “SET TIME!” appears.
   - After about two seconds, the Home Time screen appears.

2. Press **FUNC**, select “Time set”, and then use the procedure on User’s Guide (page 18) to set the Home Time.
   - If you turn power off without setting the Home Time, the “SET TIME!” message appears the next time you turn power on. The Digital Diary will not operate properly until you set the Home Time.
   - Following are the initial settings of the unit after you perform the all-reset operation.

Home Time:	New York
	JAN 1, 1998 (THU)
	12:00 AM
	12-hour format
World Time:	London
Daily Alarm:	12:00 AM
Sound:	Daily alarm — OFF
	Key — ON
Messages:	English
Character input:	CAPS — OFF

■ Power Supply

Your Digital Diary is powered by two AAA-size alkaline batteries, and its memory is protected by a single CR2032 lithium battery.

Low battery Warning
Failure of anything to appear on the display after you turn on power or appearance of the low battery message, “MAIN BATTERIES WEAK! REPLACE THEM! UNIT WILL NOT TURN ON AGAIN!” (followed by the display turning off in about 10 seconds) normally indicates that main battery power is low.

Note, however, that pressing the START button on the back of the unit and then performing steps 1 and 2 of the procedure under “When to press **N** for “no”” above can sometimes restore normal operation. When the low battery message appears on the display even if you perform these steps, it means you should replace the main batteries as soon as possible.

Note
- Take care that you do not make a mistake and delete memory contents at this time.

Important!
- Replace batteries only when low battery power is indicated by failure of the Digital Diary to turn on when you press the **ON** key. Do not replace batteries as long as the Digital Diary turns on normally when you press the **ON** key.
- There is not low battery warning for the back-up battery. Be sure to replace the back-up battery once every 5 years.
- Be sure you keep a separate copy of all important data that you store in the Digital Diary.

Battery Precautions
Incorrectly using batteries can cause them to burst or leak, possibly damaging the interior of the Digital Diary. Note the following precautions.

- Be sure to use alkaline batteries only to power this Digital Diary.
- Be sure that the positive (+) side of each battery is facing in the correct directions.
- Never mix batteries of different types.
- Never mix old batteries and new ones.
- Do not expose batteries to direct heat, let them become shorted, or try to take them apart.
- Never leave dead batteries in the battery compartment.
- Remove batteries if you do not play to use the unit for a long time.
- Replace batteries at least once every five years, no matter how much you use the unit during that period.
- Never try to recharge the batteries that come with the unit.
- Should a battery leak, clean out the battery compartment of the unit immediately, taking care to avoid letting battery fluid come into direct contact with your skin.

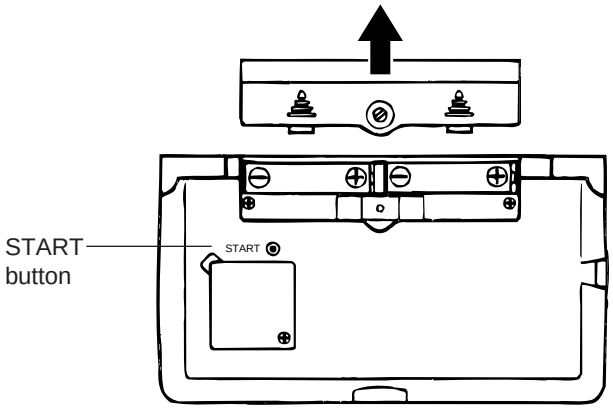
Keep batteries out of the reach of small children. If swallowed, consult with a physician immediately.

To replace the main batteries

Important!

- Do not remove the main batteries from the Digital Diary while the back-up battery is removed.
- Be sure to replace both batteries with two new ones. Do not mix an old battery with a new one.
- Be sure to press the START button after loading main batteries for the first time or if the previous set of batteries went dead.
- Replace batteries only when low battery power is indicated by failure of the Digital Diary to turn on when you press the **ON** key. Do not replace batteries as long as the Digital Diary turns on normally when you press the **ON** key.

1. Press **OFF** to turn power off.
2. Remove the screw that holds the battery compartment cover in place and open the cover.



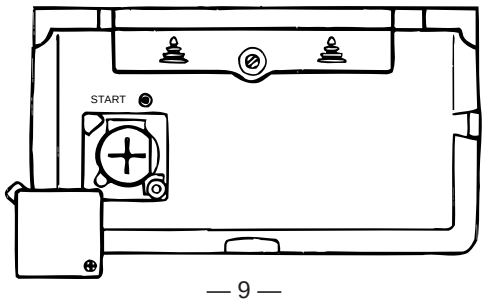
3. Remove both old batteries and replace them with new ones.
   - Make sure that the positive (+) and negative (–) ends are facing correctly.
4. Replace the battery compartment cover and secure it with its screw.
   - Take care that you do not overtighten the screw.
5. Press the START button.
   - This causes the message “ARE YOU USING A NEW UNIT FOR THE FIRST TIME (Y/N)?” to appear. Be sure to press **N** in response to this message (pressing **Y** will delete all data in memory). Next, continue with the procedures in the section title “All-Reset” on page 6.

To replace the back-up battery

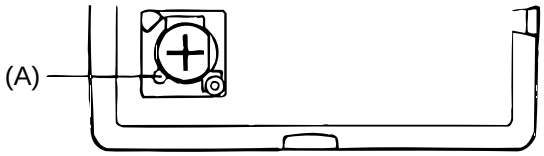
Important!

- Do not remove the back-up battery from the Digital Diary while the main batteries are removed.
- Be sure to replace the back-up battery at least once every 5 years. Otherwise, you run the risk of losing data stored in memory.

1. Press **OFF** to turn power off.
2. Remove the screw that holds the back-up battery compartment cover in place and open the cover.



3. Insert a thin, pointed object into (A) and remove the old battery.



4. Load a new battery into the compartment, making sure that its positive side is facing up (so you can see it).
5. Replace the battery compartment cover and secure it with its screw.
   • Take care that you do not overtighten the screw.

■ Turning Power On and Off

Press **ON/OFF** to turn power on and off.

Important!
- If nothing appears on the display when you turn on power, it means that the main batteries are low. Replace the batteries (page 9) and press the START button to resume normal operation.

Auto Power Off Function
The unit automatically turns power off if you do not press any key for about three minutes. Any alarms you set still sound, even if power is turned off.

■ Function Menus

- Pressing **FUNC** displays a function menu, whose contents differs depending on the mode.
- Pressing **SHIFT FUNC** displays a function menu of general system settings (system function menu).
- Input the number of the left of the function you want to use to select it.
- To exit from a function menu, press **ESC**.

■ System Language

Your Digital Diary is capable of producing messages in any one of three languages (English, French, Spanish).

To select the system language

1. Press **SHIFT FUNC** and then select “Language”.
2. Press the number key that corresponds to the language that you want to use.
   • To select “English”, you would press **1**.
   • The system language automatically changes to English whenever you perform the RESET operation (page 6).

Note
- In this manual, all display messages are shown in English.

■ Display Contrast

Use the following procedure to make the figures on the display darker or lighter.

To adjust display contrast

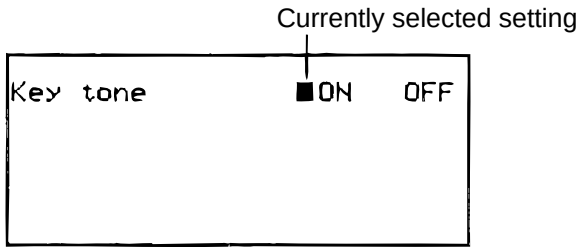
1. Press **SHIFT FUNC** and then select “Display contrast”.
2. Use ◄ and ► to make display images darker or lighter.
3. Press **OK** to quit.

■ Key Input Sound

When the key input sound is turned on, your Digital Diary emits a beep each time you press one of its keys.

To turn key input sound on and off

1. Press **SHIFT FUNC** and then select “Key tone.”



2. Use ◄ and ► to turn the key input sound on and off.
   • The KEY indicator is on the display while the key input sound is on.
3. Press **OK** to quit.

■ Destructive Backspace

When destructive backspace is turned on, the character at the cursor position is deleted when you press the **BS** key.

To turn destructive backspace on and off

1. Press **SHIFT FUNC** and then select “Backspace”.
2. Use ◄ and ► to turn destructive backspace on and off.
3. Press **OK** to quit.

3. DATA COMMUNICATIONS

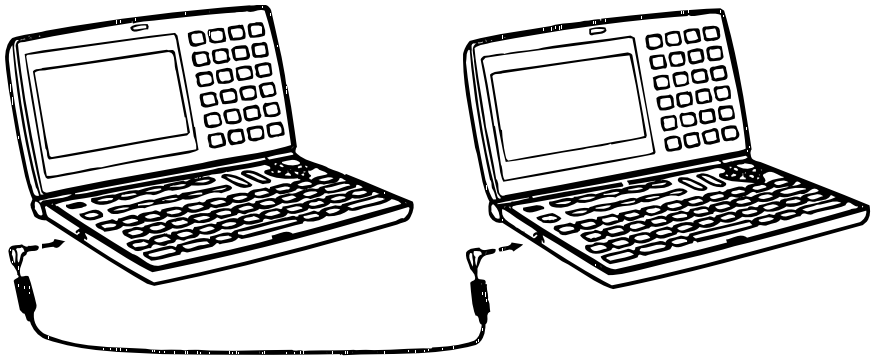
You can transfer data between two CASIO SF-5590SY,SF-5790SY, or SF-5990SY units, or between your Digital Diary and a personal computer only. You cannot exchange data with any other CASIO Digital Diary model. Data communications can be performed while in the Telephone Directory, Memo, Schedule Keeper, Calendar, To Do, Reminder, or Expense Manager Mode.
Data synchronizing helps you to make sure that the data in your PC and your Digital Diary are always up to date.

■ Setting Up for Data Communications

The following describes what you would do to set up for data communications between two Digital Diary units or between a Digital Diary unit and a personal computer.

To connect to another Digital Diary unit

1. Make sure that the power of both units is turned off.
2. Open the covers of the data communications jacks of the two Digital Diary units.
3. Connect the two units using the SB-63 cable.



Important!

- Be sure to close the connector covers of the Digital Diary units when you are not perfoming data communications.

Performing data communications between a Digital Diary unit and a personal computer running Windows 3.1 or Windows 95

See the manual that comes with the FA-128 for details on connecting to a computer and setting up for communication.

Note

- The CASIO Data Communication Package may not be included with certain Digital Diary models. Please note that there are a number of different CASIO Data Communication Packages to suit various computers and Digital Diary types. Because of this, you should note the following important points when purchasing a Data Communication Package. If you have any question about which package you need, consult with experts.

  - Make sure the Data Communication Package is designed for you with your particular model of personal computer.
  - For information on how to connect the Digital Diary to a personal computer, see the user's manual that comes with the Data Communication Package.

3-1. DATA TRANSMISSION FROM A UNIT TO ANOTHER UNIT

Performing the following procedure, you can transfer the data from a unit (S) for sending to another unit (R) for receiving without entering password even if unit (S)'s data are protected by password.

Remarks:
1. The units should be the same models because these units should have the same memory capacity and functions.
2. Press **ESC** button if you abort any operation.

PROCEDURE

① Connect two units using the SB-63 cable as described with the previous page.
② Turn the both units power on.
③ Press **RESET** button on the unit (R)'s rear panel using the thin, pointed object.
Press **Y**, then **OK** button (RESETTING OF THE UNIT (R)).
④ Pressing **HOME/WORLD** button once or twice, display NEW YORK home time message, then press **FUNC** and then **1** (Time set) button with the both units.
⑤ Set the time to FEB. 3, 1901 (2/3/1901) using **->** button and numeral buttons with the both units (press **->**, **->**, **0**, **2**, **->**, **0**, **3**, **->**, **1**, **9**, **0**, **1** and **OK** button.).
⑥ Press **CALENDAR**, **FUNC**, and then **4** (Send (Holidays)) button with the unit (S).
⑦ Press **SHIFT**, **FUNC**, **4** (Receive data) and then **Y** button with the unit (R).
⑧ Pressing **Y** button with the unit (S), the data transmission from the unit (S) to the unit (R) starts to perform.
⑨ After this transmission, don't turn the unit (R)'s power off and confirm to exist the transferred data in the unit (R).

3-2. DATA TRANSMISSION BETWEEN A UNIT AND PERSONAL COMPUTER USING FA-128

FA-128 (PC LINK software (2 floppy disk) , a cable for data transmission and User's Guide) is added to SF-5590SY PLUS/5790SY PLUS/5990SY PLUS as described with the previous page. Refer to 9. PARTS LIST regarding PC LINK software and a cable for data transmission. See to this User's Guide for FA-128 when you want to know in detail how to use this PC LINK software.

■ REMARK

1. If any password was registered with a unit, the data transmission from a unit to PC will not be performed without entering its password into a unit.
   Be sure to enter the password.
2. You can easily load FA-127 files (xxxx.twf) of another old CASIO Digital Diary into FA-128. But you can not load FA-128 files (□□□□.twf) into FA-127 although the same file ("TWF" file) is used.
3. You can not transfer the data converted from FA-127 file into FA-128 file to SF-5590SY/5790SY/5990SY.
4. The data of another old CASIO Digital Diary can be transferred to PC using FA-128. But these data can not be transferred to its Digital Diary again.

■ DATA SYNCHRONIZATION (Brief explanation)

Data synchronization is a feature with data transmission between SF-5590SY/5790SY/5990SY (SY indicates "synchronization") and PC using FA-128.
See to the User's Guide for FA-128 when you want to know the data synchronization in detail.
The CASIO Digital Diaries (SY models) can be synchronized with an FA-128 files, i.e. the PC file and the Digital Diary can be brought up to an identical data state. New records existing on both units in an identical state will be filtered automatically, to avoid creating doubles.
Data synchronization can be performed for the following modes: Telephone Directory, Memo, Schedule Keeper, To Do, Reminder, Expense Manager.

● **PROCEDURE**

<PC side>

① After setting up FA-128 PC LINK software to your PC in accordance with User's Guide, connect SF-5590SY/5790SY/5990SY to PC using cable for data transmission.

② Open FA-128 PC LINK software.

③ Select **Options** in Menu Bar, then **Default Digital Diary...** .

④ Select **available Digital Diaries** (for example, SF-5590SY), then **OK**.

⑤ Select **Casio**, then **Synchronization Setup...** .

⑥ Perform Setup for Synchronization in accordance with User's Guide.
At this time, be sure to select **Detect Automatically Synchronization Start**.
After setting up, select **OK**.

⑦ Select **Casio**, then **Transmission Setup...** .

⑧ Select Serial Port (for example, **COM1**) which you use with PC, then **OK**.

To synchronize data for a single mode

<Digital Diary side>

⑨ Press the Digital Diary's **SYNCHRONIZE** button.

⑩ Press the mode button for the mode whose data you want to synchronize (**TEL**, **MEMO**, **SCHEDULE**, **TO DO**, **REMINDER**, **EXPENSE**) to start.
● You can press **ESC** button to abort the above procedure.

<PC side>

⑪ The dialog box for Start Synchronization appears. Select **OK**.
If the dialog box for Different Synchronization Information appears, for example, select "**A Recognition And Filter Duplicate Records**", then **OK**.

⑫ Synchronization starts to run (0 %→100 %).

<Digital Diary side>

⑬ The Home Time screen appears when the synchronization operation finishes.

To synchronize data for all mode

● All-mode synchronization takes a long time to complete.

⑨ Press **SHIFT**, then **SYNCHRONIZE** button to start synchronization of all modes.

<PC side>

⑩ The dialog box for Start Synchronization appears. Select **OK**.
If the dialog box for Different Synchronization Information appears, for example, select "**A Recognition And Filter Duplicate Records**", then **OK**.

⑪ Synchronization starts to run (0 %→100 %).

<Digital Diary side>

⑫ The Home Time screen appears when the synchronization operation finishes.

4. OPERATION CHECK

REMARKS:

1. **Executing this check, the data stored in this Digital Diary are deleted. So if you won't delete this important data, you should store its data in another Digital Diary (SF-5590SY/5790SY/5990SY) referring to the item 3. Data communications in this manual.**
2. **You cannot put out the light from EL while executing this check.**

● LCD CHECK

① Press **RESET** button on the rear panel while pressing **OK** button on the front panel.
LCD display appears as shown right.
(figure-1)

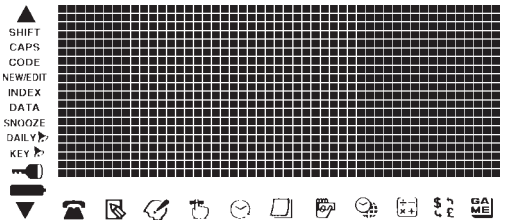


figure-1

② Press **OK** button four times.
LCD display appears as shown right.
(figure-2)

figure-2

③ Then press **OK** button.
LCD display appears as shown right.
(figure-3)

④ Press **OK** button again.
LCD display appears as shown in the **figure-1** again.

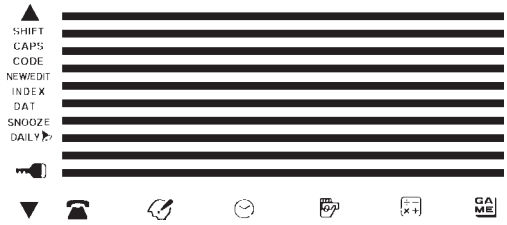


figure-3

● ROM CHECK

⑤ Wait 4 ~ 5 seconds, then press **OK** button.

LCD display ⟶ **ROM TEST ROM OK**

● RAM CHECK

⑥ Press **OK** button.

LCD display ⟶ **ROM TEST ROM OK**
RAM TEST

⑦ Wait about 45 ~ 50 seconds.

In case of SF-5590SY,

LCD display → **ROM TEST ROM OK**
RAM TEST 1 2 8 K OK

In case of SF-5790SY,

LCD display → **ROM TEST ROM OK**
RAM TEST 1 2 8 K OK
2N D
RAM TEST 1 2 8 K OK

, or

LCD display → **ROM TEST ROM OK**
RAM TEST 2 5 6 K OK

In case of SF-5990SY,

LCD display → **ROM TEST ROM OK**
RAM TEST 5 1 2 K OK

● **KEY CHECK**

⑧ Press **OK** button.

LCD display → **KEY TEST**

⑨ Press any button. For example, press **TEL** button.

LCD display → **KEY TEST**
TEL

After pressing any button, LCD displays a letter or a number correspond to its button. Check all keys (buttons) in this way except to **OK** button.

● **COMMUNICATION CHECK**

⑩ Press **OK** button.

LCD display → **1 COMM 2 ECHO**

⑪ Prepare another unit, then execute the procedure described above (① ~ ⑩).

Another unit's LCD display → **1 COMM 2 ECHO**

⑫ Connect two units using the SB-63 cable as shown by the item **3. DATA COMMUNICATIONS** (page 12) in this manual.

⑬ Press **2** button on any unit (A).

This unit's
LCD display ⟶ **2 ECHO (OK)**

⑭ Then press **1** button on another unit (B).

Another unit's
LCD display ⟶ **1 COMM 2 ECHO OK**

In case of NG, LCD displays a letter "**FAIL**".
If "**OK**" was displayed, another unit (B) transmitted data to any unit (A).

⑮ Pressing **ESC** buttons on the both units, return to the condition described in the item ⑫.
LCD displays on the both units are the same as display shown in the item ⑪ .

⑯ Next, try to transmit data from the unit (A) to the unit (B).

⑰ Return to the condition described in the item ⑫ using **ESC** button.

⑱ Pressing **ON/OFF** button, the following message appears.

ARE YOU USING A
NEW UNIT FOR THE
FIRST TIME (Y/N)?

⑲ Pressing **Y** button, the following message appears.

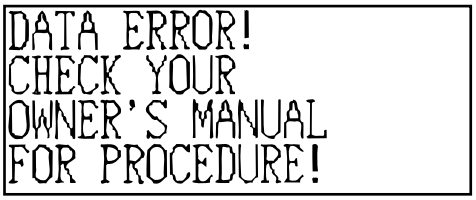
CLEAR MEMORY AND
SET UP THE UNIT
FOR OPERATION?
YES (OK)/NO (ESC)

⑳ Press **OK** button. [Doing so, the data stored in this Digital Diary are deleted]

5. ERROR MESSAGES

Data Error Message

The data error message appears whenever the Digital Diary's internal check discovers a problem with data stored in memory.



Appearance of the data error message indicates that you must perform the all-reset procedure to correct the problem. Start out with the procedure under "To start the all-reset operation" on page 6, and continue with the procedure under "When to press **Y** for "Yes" on page 6".

Important!

- Even though you are not using the unit for the first time, you must press **Y** (for "Yes") when the unit asks "ARE YOU USING A NEW UNIT FOR THE FIRST TIME (Y/N)?" in order to reset the unit after a data error occurs.

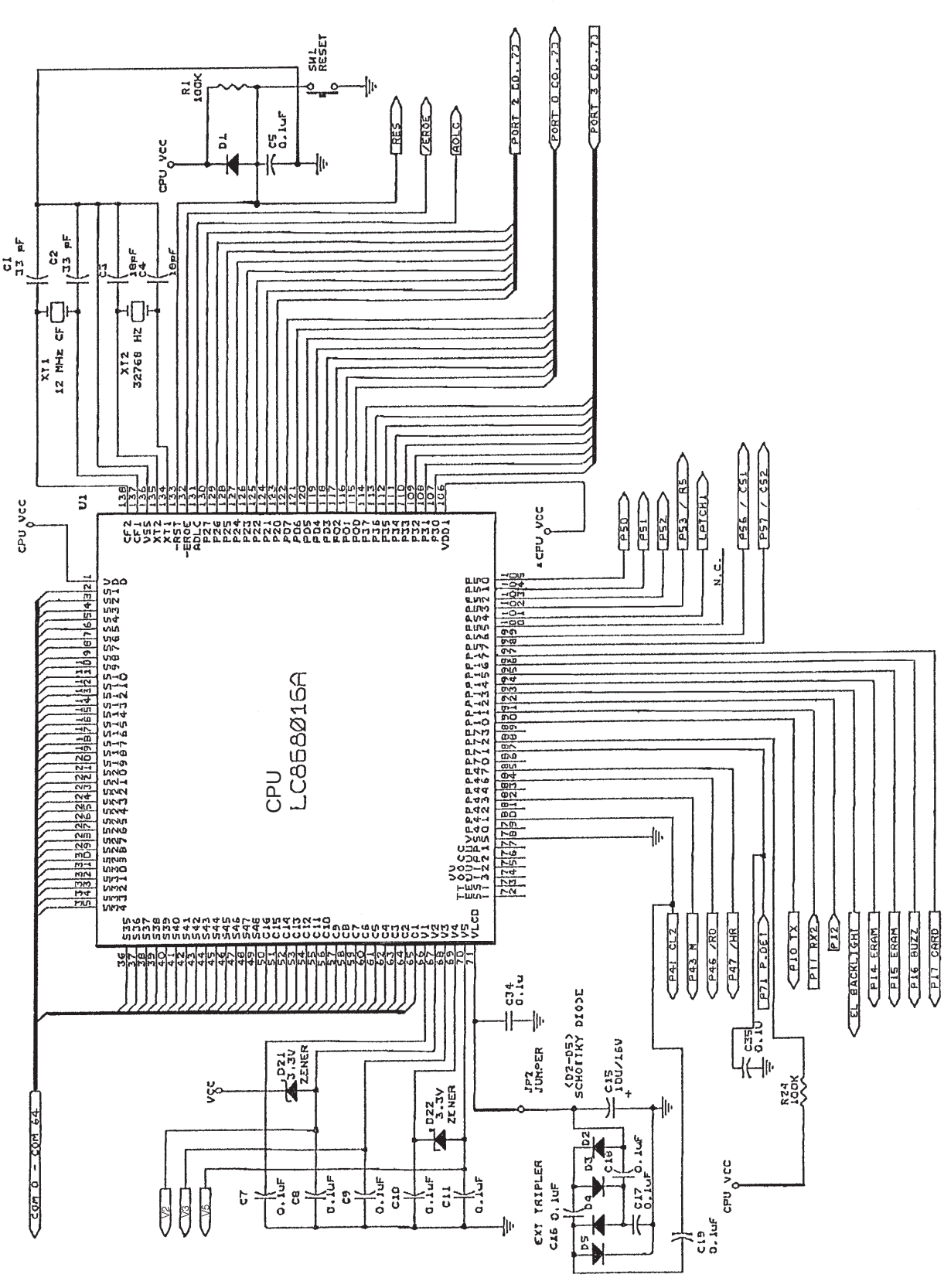
If you still have trouble after trying the RESET operation, you may have a hardware problem.

■ Message Table

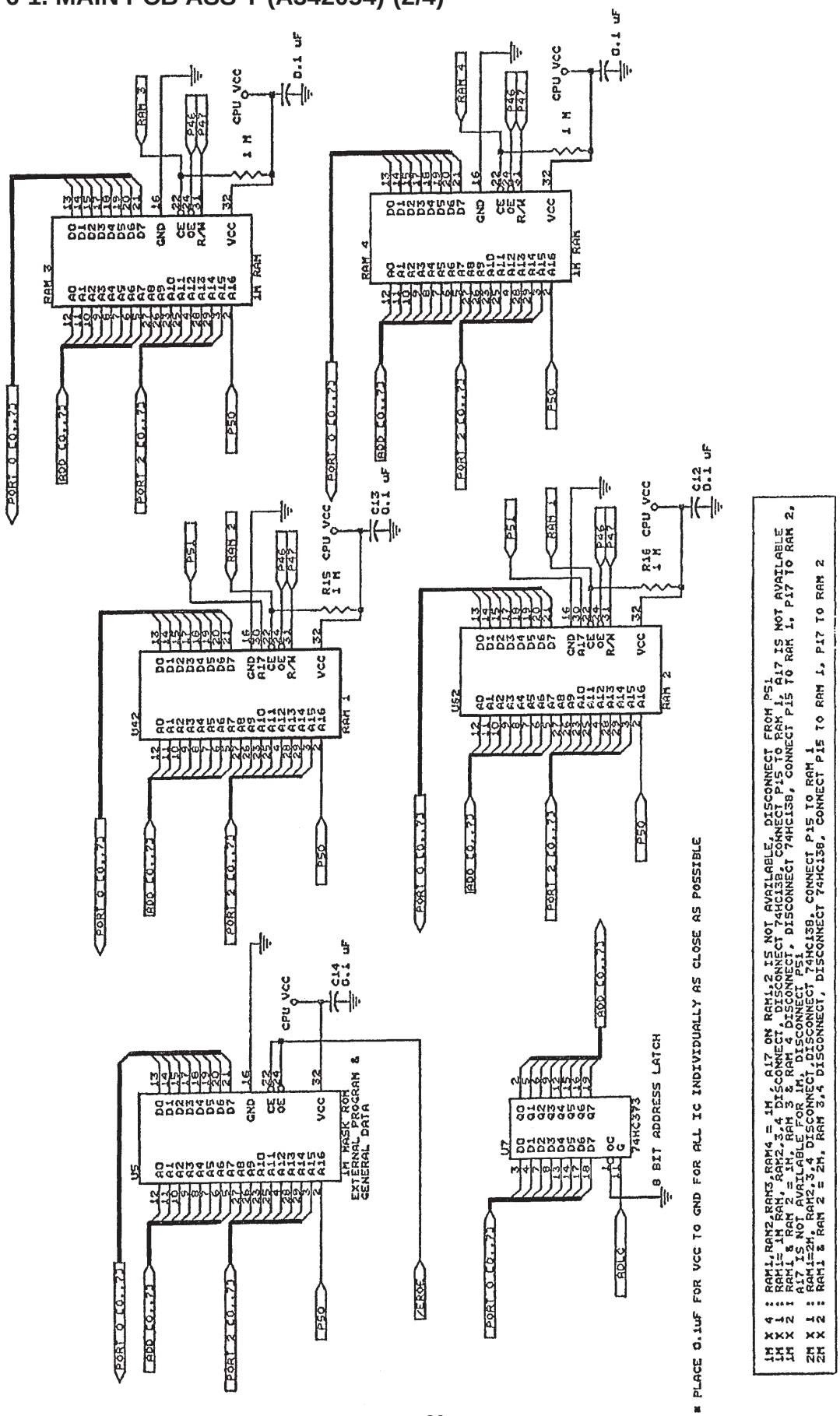
Message	Meaning	Action
NOT FOUND! PRESS ESC TO QUIT.	Data specified in search operation does not exist in memory.	Change specification or cancel search.
MEMORY FULL, PRESS ANY KEY.	No more room in memory for storage of data.	Delete unnecessary data items from memory.
ALARM TIME COINCIDENT!	Attempt to set an alarm that is already used for another entry.	Set a different alarm time or change the existing alarm time.
ALARM TIME ALREADY PASSED!	Attempt to set an alarm for a time or data that is already passed.	Set a different alarm time.
DATA COMM. ERROR, PRESS ANY KEY!	Error during data communications.	Cancel the operation and try again.
DATA SYNC. ERROR, PRESS ANY KEY!		
ARE YOU USING A NEW UNIT FOR THE FIRST TIME (Y/N)?	The reset procedure has started.	See page 6.
CLEAR MEMORY AND SET UP THE UNIT FOR OPERATION? YES (OK)/NO (ESC)	The reset procedure is in progress.	See page 7.
DATA ERROR! CHECK YOUR USER'S GUIDE FOR PROCEDURE!	Data corrupted by strong impact, electrostatic charge, etc.	See page 18.
MAIN BATTERIES WEAK! REPLACE THEM! UNIT WILL NOT TURN ON AGAIN!	The main batteries are getting weak.	Replace main batteries immediately (page 9).

6. SCHEMATIC DIAGRAMS

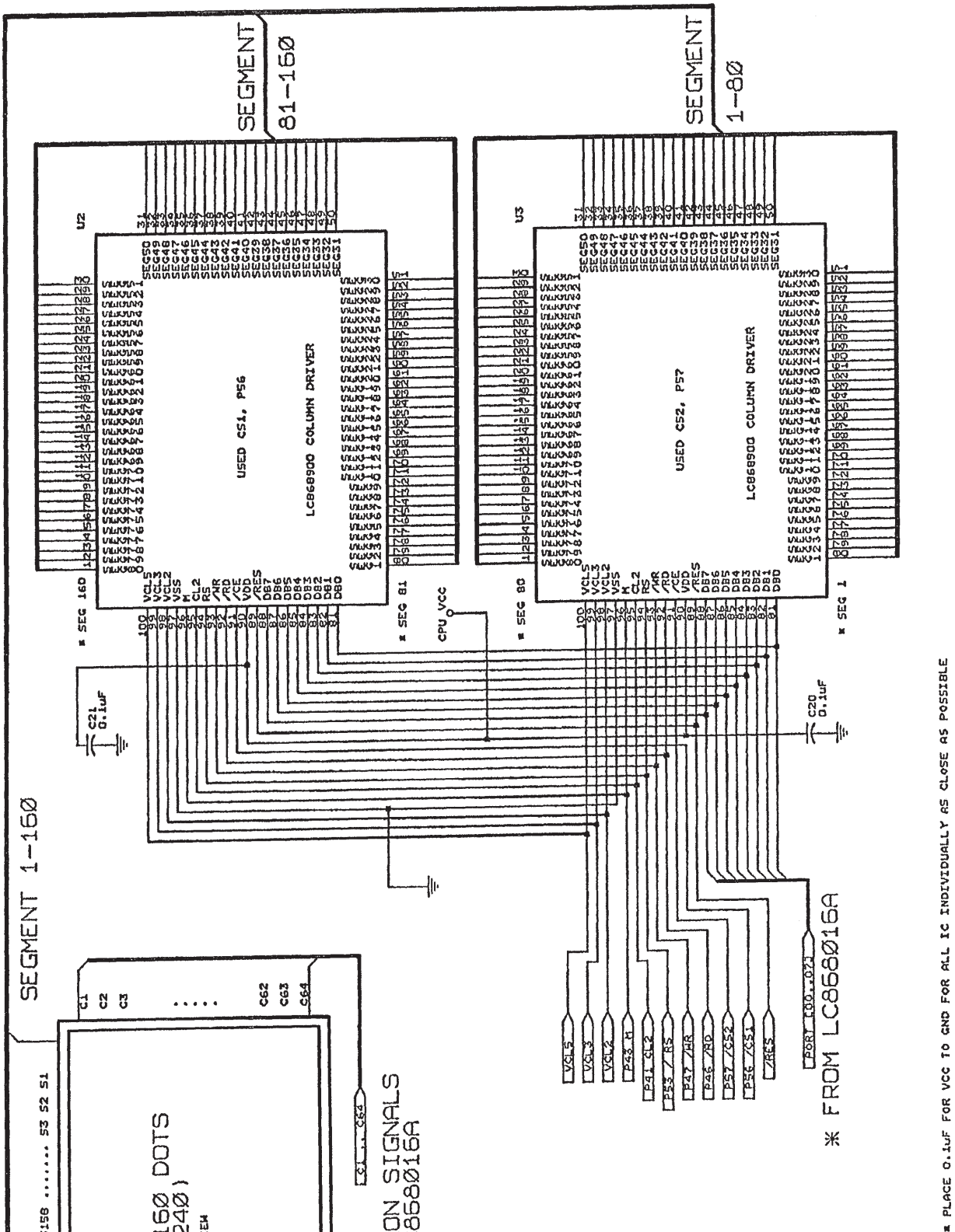
6-1. MAIN PCB ASS'Y (A342054)-(1/4)



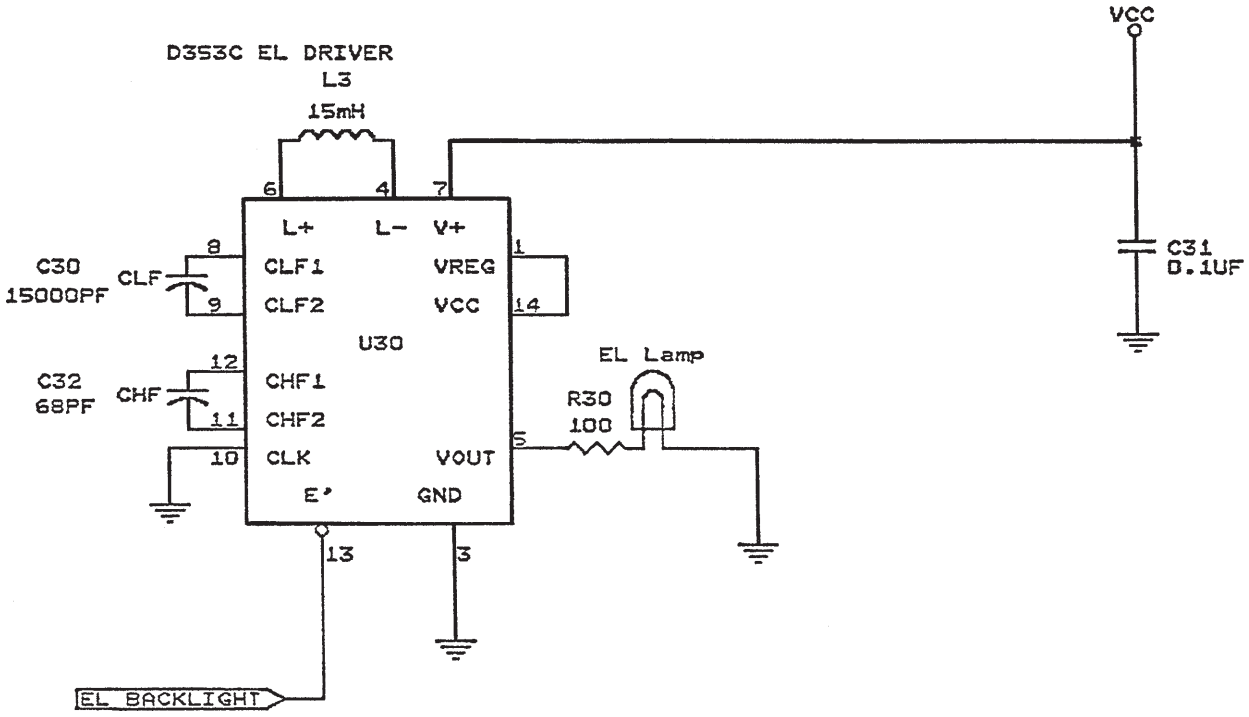
6-1. MAIN PCB ASS'Y (A342054)-(2/4)


1M X 4 : RAM1,RAM2,RAM3,RAM4 = 1M, A17 ON RAM1,2 IS NOT AVAILABLE, DISCONNECT FROM P51
1M X 1 : RAM1= 1M RAM, RAM2,3,4 DISCONNECT, DISCONNECT 74HC138 CONNECT P15 TO RAM 1, A17 IS NOT AVAILABLE
1M X 2 : RAM1 & RAM 2 = 1M, RAM 3 & RAM 4 DISCONNECT, DISCONNECT 74HC138, CONNECT P15 TO RAM 1, P17 TO RAM 2,
A17 IS NOT AVAILABLE FOR 1M, DISCONNECT P51
2M X 1 : RAM1=2M, RAM2,3,4 DISCONNECT,DISCONNECT 74HC138, CONNECT P15 TO RAM 1
2M X 2 : RAM1 & RAM 2 = 2M, RAM 3,4 DISCONNECT, DISCONNECT 74HC138, CONNECT P15 TO RAM 1, P17 TO RAM 2
* PLACE 0.1uF FOR VCC TO GND FOR ALL IC INDIVIDUALLY AS CLOSE AS POSSIBLE
8 BIT ADDRESS LATCH
EXTERNAL PROGRAM & GENERAL DATA
1M MASK ROM
RAM 1
RAM 2
RAM 3
RAM 4
CPU VCC
0.1 uF
1 M
PORT 0 [0..7]
PORT 2 [0..7]
ADD [0..7]
ADDL
ZERO
P50
P51
P46
P47

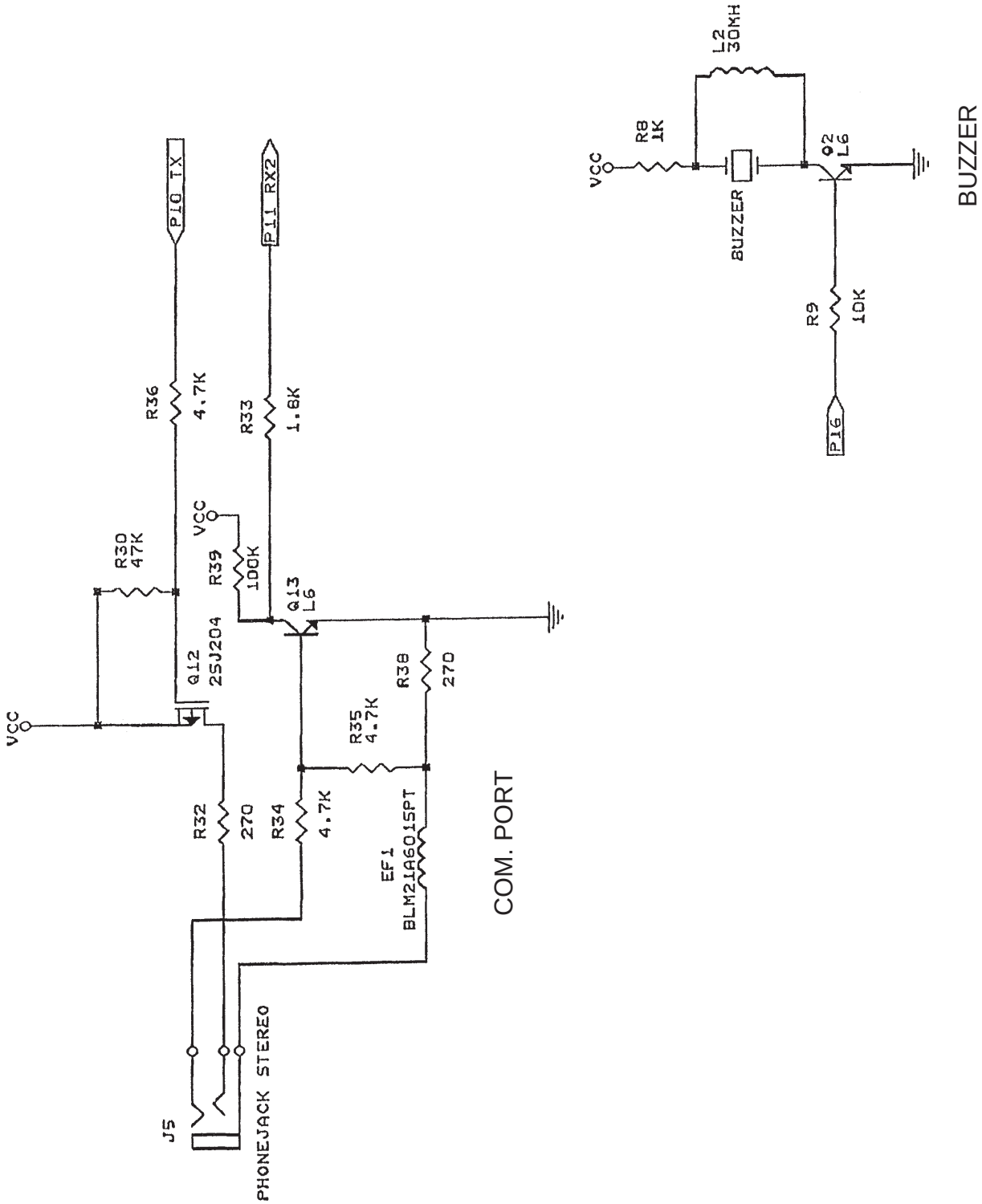
6-1. MAIN PCB ASS'Y (A342054)-(3/4)



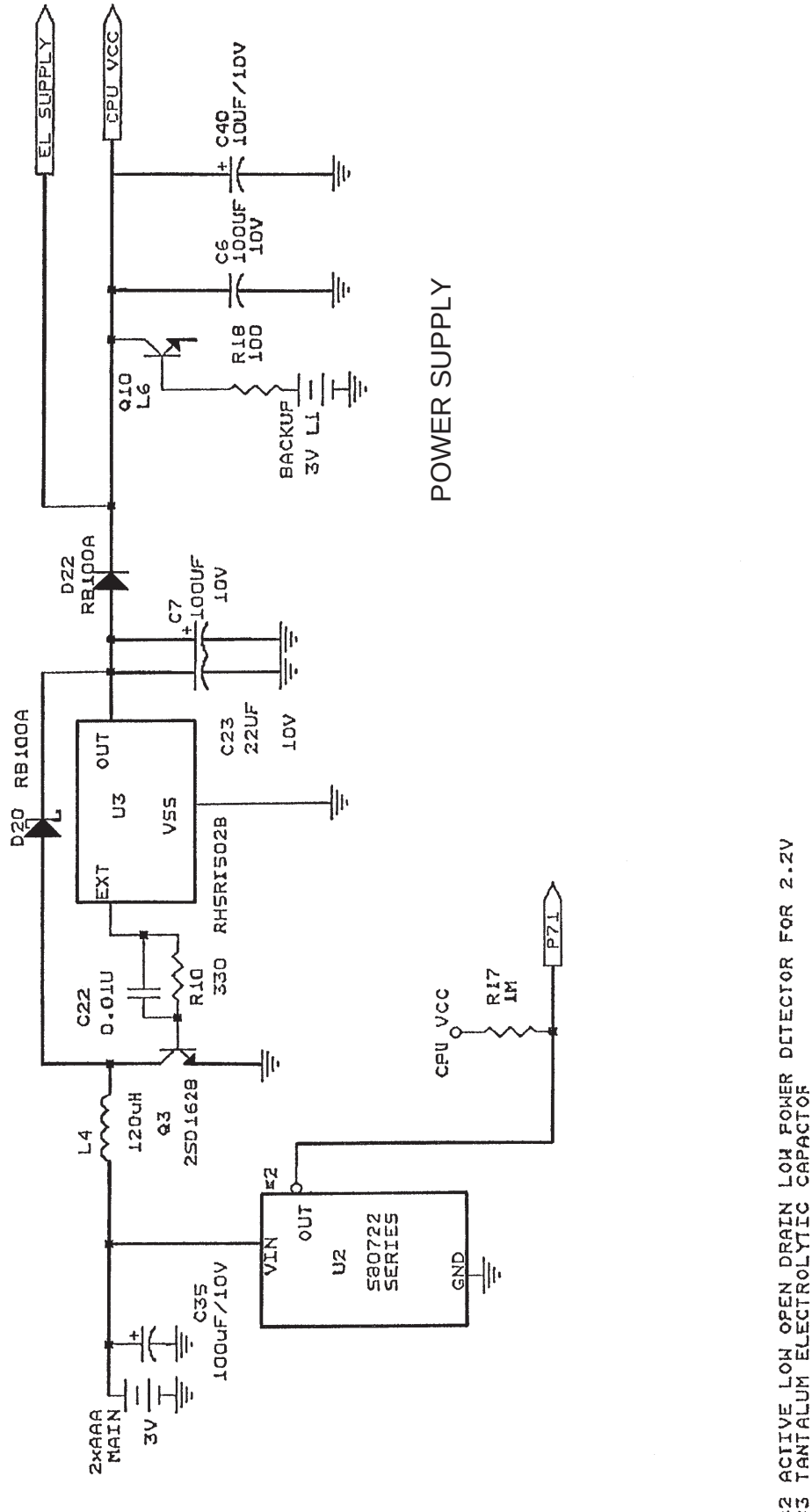
6-1. MAIN PCB ASS'Y (A342054)-(4/4)



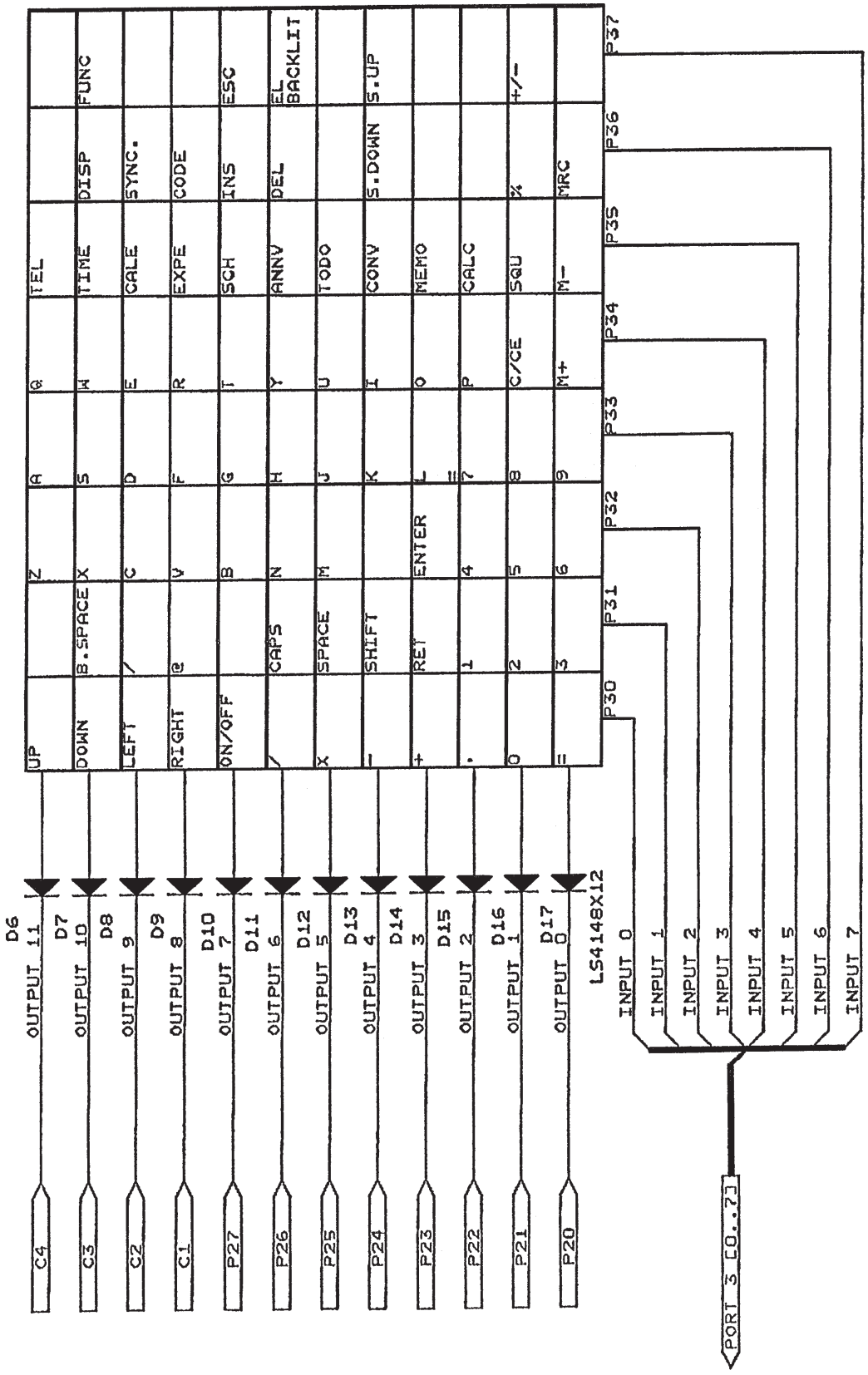
6-2. KEYBOARD PCB ASS'Y (A342055)-(1/3)



6-2. KEYBOARD PCB ASS'Y (A342055)-(2/3)



6-2. KEYBOARD PCB ASS'Y (A342055)-(3/3)



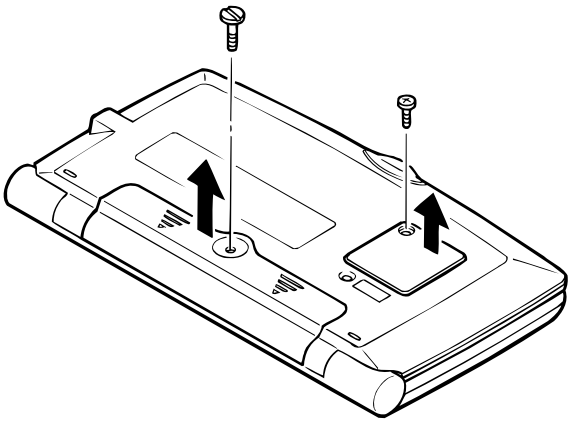
7. LSI PIN FUNCTION

CPU (LC868016A): U1

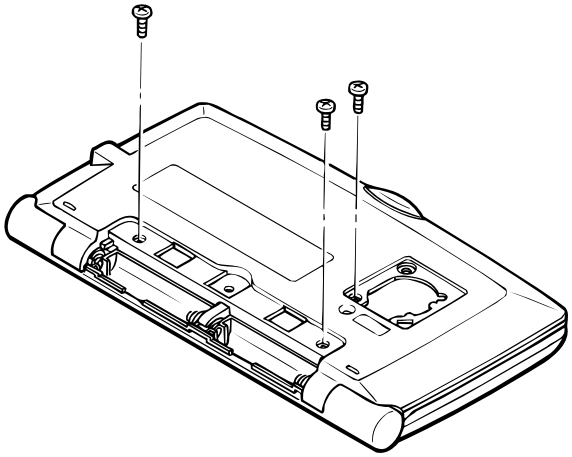
Pin No.	Name	I/O	Function
1	VDD	I	Power supply for this CPU
2~65	S1~48,C1~16	O	Common signals to LCD
66	V1	O	Bias power supply to LCD
67	V2	O	
68	V3	O	
69	V4	O	
70	V5	O	
71	VLCD	O	Power supply to LCD
78	VSS	—	Ground for this CPU
80	P41	O	Clock for LCD driver LSI(U2, U3:LC868900)
82	P43	O	Signal to LCD driver LSI(U2, U3:LC868900)(AC voltage is supplied to LCD by this signal.)
84	P46	O	Read signal to RAM(U42, U62) and LCD driver LSI(U2, U3:LC868900)
85	P47	O	Write signal to RAM(U42, U62) and LCD driver LSI(U2, U3:LC868900)
87	P71	I	Detection of low battery voltage(=2.5V) from IC(U2:S80725)
90	P10	O	Serial data output to another unit or a personal computer
91	P11	I	Serial data input from another unit or a personal computer
93	P13	O	Control signal to power supply IC(DC/AC inverter IC) for EL (H: EL-OFF/L: EL-ON)
96	P16	O	Control signal for buzzer(H: buzzer-ON/L: buzzer-OFF)
98	P57	O	Chip select to LCD driver LSI(U3:LC868900)
99	P56	O	Chip select to LCD driver LSI(U2:LC868900)
101	P54	O	Clock to IC(U8:74HC273) for the keyboard data latch
102	P53	O	Control signal to LCD driver LSI(U2, U3:LC868900)
104	P51	O	Address bus to RAM(U42, U62)
105	P50	O	Address bus to ROM(U5)
106	VDD1	O	Power supply for this CPU
107	P30	I	Signals for key assign from keyboard
108	P31	I	
109	P32	I	
110	P33	I	
111	P34	I	
112	P35	I	
113	P36	I	
114	P37	I	
115	P00	I/O	Address bus to the address data latch IC(U7:74HC373)
116	P01	I/O	
117	P02	I/O	
118	P03	I/O	
119	P04	I/O	
120	P05	I/O	
121	P06	I/O	
122	P07	I/O	
123	P20	O	Address bus to ROM(U5) and RAM(U42, U62)
124	P21	O	
125	P22	O	
126	P23	O	
127	P24	O	
128	P25	O	
129	P26	O	
130	P27	O	
131	ADLC	O	Control signal to the address data latch IC(U7:74HC373)
132	-EROE	O	Chip select to ROM(U5)
133	-RST	I	Reset signal for this CPU and LCD driver LSI(U2, U3:LC868900)
134	XT1	I	Timer clock for this CPU
135	XT2	O	
136	VSS	—	Ground for this CPU
137	CF1	I	Main clock for this CPU
138	CF2	O	

8. DISASSEMBLY

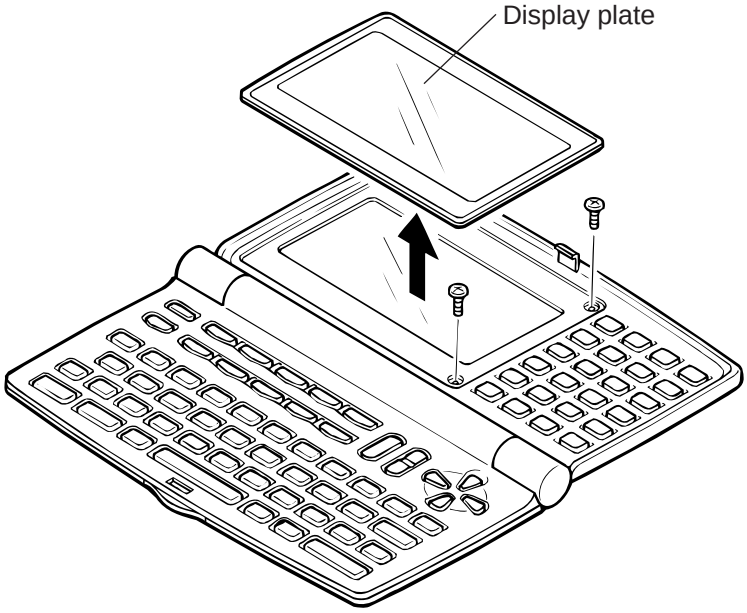
① Remove two screws then remove the battery cover.



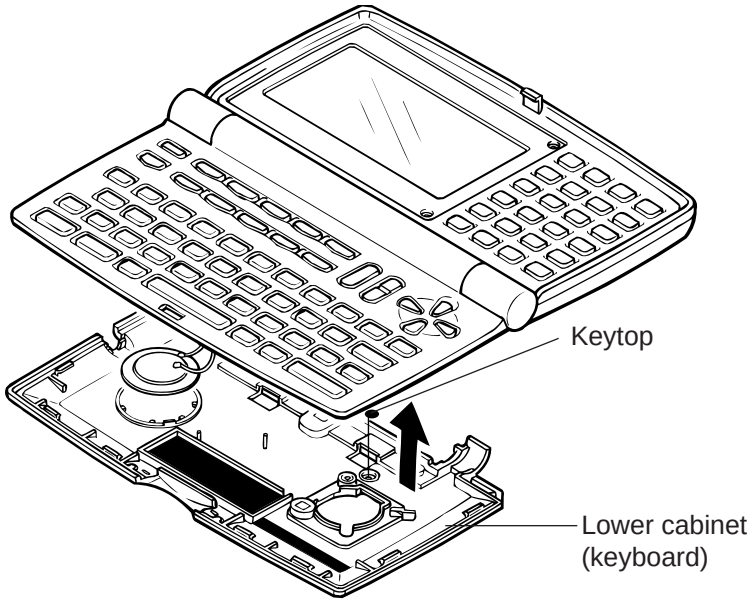
② Remove three screws.



③ Open the unit and remove two screws behind the display plate.

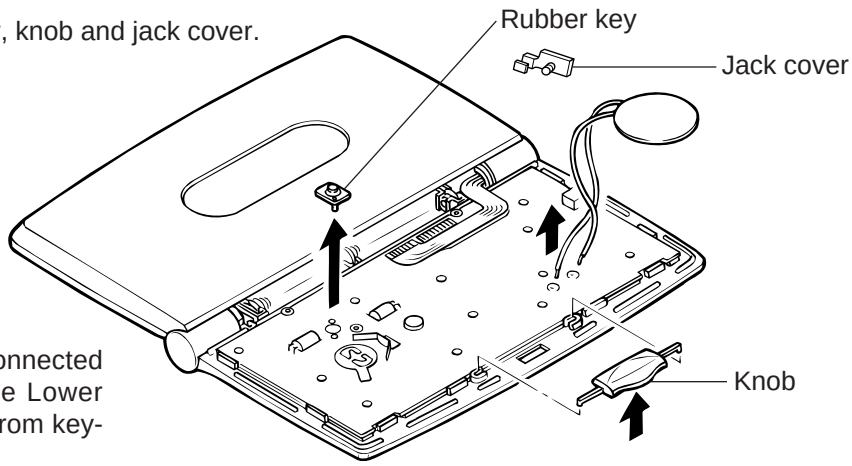


④ Remove Lower cabinet (keyboard) and keytop.

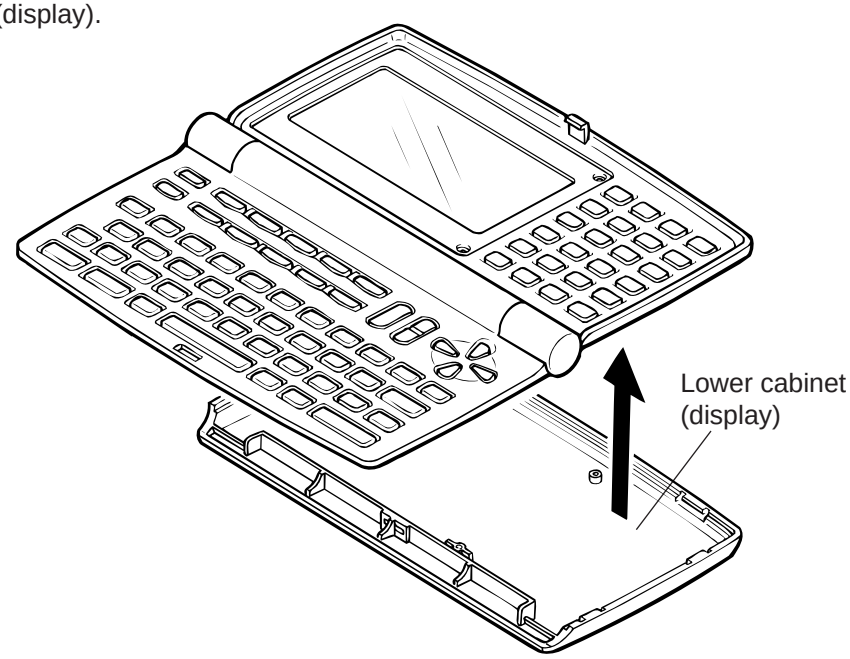


⑤ Remove Rubber key, knob and jack cover.

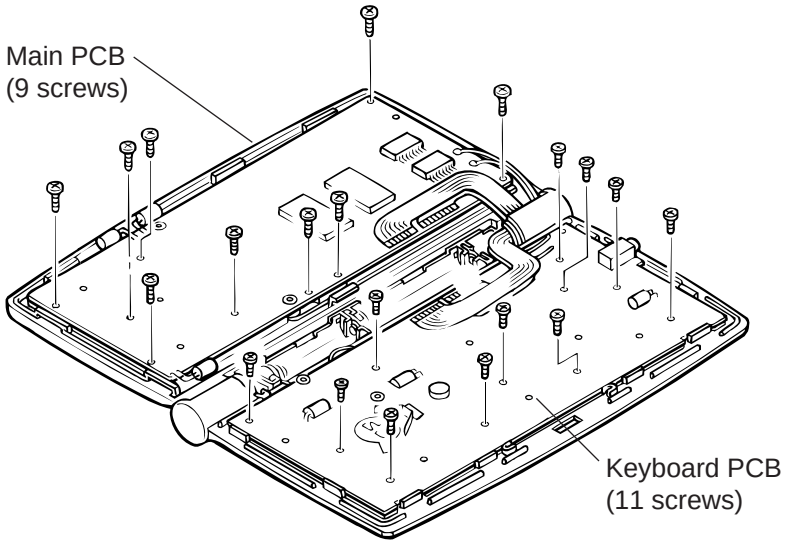
⑥ Desolder the wire connected to the buzzer on the Lower cabinet (keyboard) from keyboard PCB ass'y.



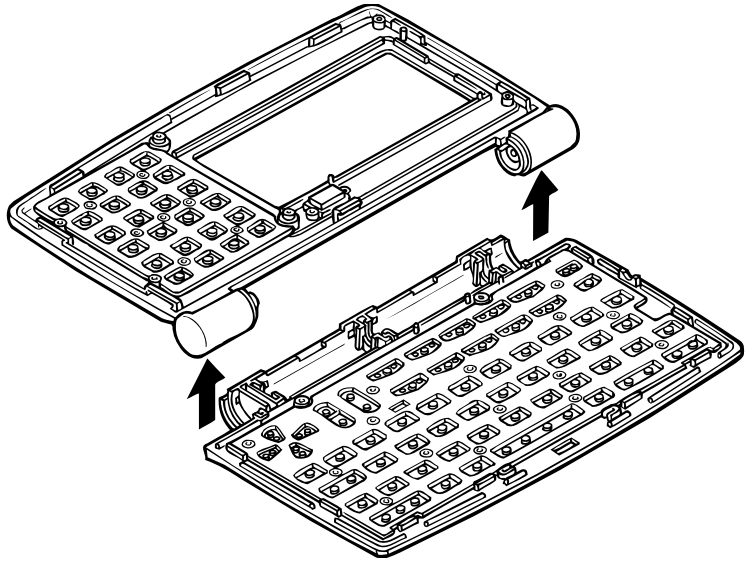
⑦ Remove Lower cabinet (display).



⑧ Remove screws on PCB shown above then remove PCB ass'y.

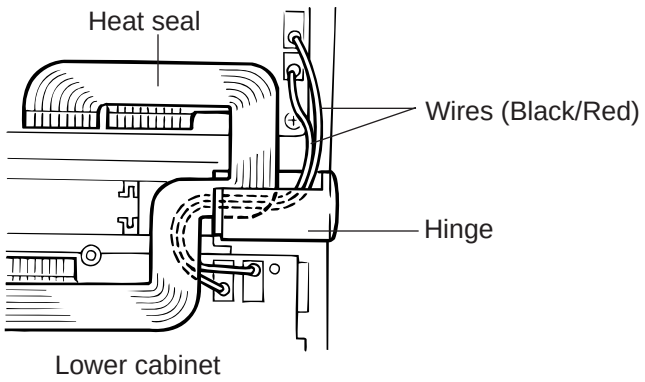


⑨ Separate upper cabinets.



REMARK:

Heat seal and wires must be placed inside of the hinge in order for the Lower cabinet (keyboard) to fit into place.
If heat seal and wires are placed improperly, they are damaged.



9. PARTS LIST

N	Item	Code No.	Parts Name	Specification	Applicable	Q	R
	PCB ASSY (A342054)						
	* There are two types of PCB ASSY (A342054) with SF-5790SY PLUS (I, J) and SF-5790SY (K, L)--A type & B type						
N	U5	2012 5867	LSI/ROM	CMO-03-ZX455	Common	1	B
	U62	2012 5520	LSI/S-RAM	CMO-02-128NC-01	E,F,G,H	1	B
	*U42, U62	2012 5520	LSI/S-RAM	CMO-02-128NC-01	I, J, K, L (A-type)	2	B
	*U62	2012 5519	LSI/S-RAM	CMO-02-256SN-01	I, J, K, L (B-type)	1	B
	U42, U62	2012 5519	LSI/S-RAM	CMO-02-256SN-01	M,N,O,P	2	B
	U7	2114 5771	IC/TTL	CMO-09-HC373	Common	1	C
	U8	2114 5770	IC/TTL	CMO-09-HC273	Common	1	C
N	U12	2114 5827	IC	CMO-13-D353C-01	Common	1	C
	XT1	2590 2691	OSCILLATOR/CRYSTAL	RER-01-12	Common	1	C
	XT2	2590 2690	OSCILLATOR/CRYSTAL	QUA-02-26	Common	1	C
N	D2~D5	2390 3031	DIODE/SCHOTTKY	DIO-03-RB500V	Common	4	C
	D6~D17	2390 3005	DIODE	DIO-01-LS4148	Common	12	C
N	D21,D22	2390 3030	DIODE/ZENER	DIO-02-UDZ3.3B	Common	2	C
	L3	6420 1950	COIL/CHOKE	C01-02-4615	Common	1	C
	PCB ASSY (A342055)						
N	U2	2114 5828	IC/MOS	CMO-14-5VL22AA	Common	1	C
N	U3	3065 0712	CONVERTOR	CMO-10-R1502B	Common	1	C
	Q2 ,Q10, Q13	2259 2713	TRANSISTOR	TRR-01-NPNL6	Common	3	C
N	Q3	2253 0711	TRANSISTOR	TRR-01-2SD1628G	Common	1	C
N	Q12	2254 0565	FET	TRR-02-2S5204	Common	1	C
	D1	2390 3005	DIODE	DIO-01-LS4148	Common	1	C
N	D20, D22	2390 3032	DIODE/SCHOTTKY	DIO-03-RB100A	Common	2	C
	L2	6419 6430	COIL/CHOKE	COI-02-4630	Common	1	C
	L4	3122 3509	INDUCTOR	IND-01-120	Common	1	C
N	1	3502 2382	JACK	JCK-01-1601	Common	1	C
	2	6419 6460	SPRING/BATTERY	BAC-01-988+	Common	1	X
	3	6419 6470	SPRING/BATTERY	BAC-01-988-	Common	1	X
	PCB ASSEMBLY						
	4	5610 9420	HEAT SEAL	HES-03-ZX876A	Common	1	B
	5	5610 9430	HEAT SEAL	HES-03-ZX876B	Common	1	B
	6	5610 9440	HEAT SEAL	HES-01-161055	Common	1	B
	7	3502 2224	HEAT SEAL	HES-01-064065	Common	1	B
	8	3335 6535	LCD/FSTN	LCD-03-ZX876	Common	1	B
	9	3312 0057	ELECTRO LUMINESCENCE	LAM-03-ZX876	Common	1	B
N	10	6421 3920	PCB ASSY	A342054*1 HK	E, F, G, H	1	B
N	10	6421 3940	PCB ASSY	A342054*3 HK	I, J, K, L	1	B
N	10	6421 3980	PCB ASSY	A342054*7 HK	M, N, O, P	1	B
N	11	6421 4000	PCB ASSY	A342055*1 HK	Common	1	B
	COMPONENTS						
N	12	6421 4170	RUBBER/KEY(24-KEY)	KEY-04-ZX455A-0	Common	1	C
N	13	6421 4190	COVER/PHONE JACK	JCK-02-ZX455	Common	1	C

Notes: N-New parts
R-Rank

R- A: Essential
B: Stock recommended
C: Others
X: No stock recommended

E: SF-5590SY PLUS (include PC Link Floppy disk & Cable)
F: SF-5590SY PLUS (B.O.S.S. for E)
G: SF-5590SY (not include PC Link Floppy disk & Cable)
H: SF-5590SY (B.O.S.S. for G)
I: SF-5790SY PLUS (include PC Link Floppy disk & Cable)
J: SF-5790SY PLUS (B.O.S.S. for I)
K: SF-5790SY (not include PC Link Floppy disk & Cable)
L: SF-5790SY (B.O.S.S. for K)
M: SF-5990SY PLUS (include PC Link Floppy disk & Cable)
N: SF-5990SY PLUS (B.O.S.S. for M)
O: SF-5990SY (not include PC Link Floppy disk & Cable)
P: SF-5990SY (B.O.S.S. for O)

N	Item	Code No.	Parts Name	Specification	Applicable	Q	R
N	14	6421 4200	CASE/UPPER DISPLAY	HOU-04-ZX876-03	Common	1	X
N	15	6421 4210	RUBBER/KEY	KEY-03-095	Common	1	C
N	17	6421 4220	KNOB	KEY-05-ZX455	Common	1	C
	18	6419 6240	RUBBER/CONTACT DUMMY	CON-05-507327	Common	2	X
N	19	6421 4230	CASE/LOWER KEYBOARD	HOU-02-ZX455-00	E, G, I, K, M, O	1	X
N	19	6421 4240	CASE/LOWER KEYBOARD	HOU-02-ZX455-01	E for U.S.A., G for U.S.A, F, H	1	X
N	19	6421 4250	CASE/LOWER KEYBOARD	HOU-02-ZX455-02	I for U.S.A., K for U.S.A., J, L	1	X
N	19	6421 4260	CASE/LOWER KEYBOARD	HOU-02-ZX455-03	M for U.S.A., O for U.S.A., N, P	1	X
N	20	6421 4270	CASE/UPPER KEYBOARD	HOU-01-ZX455-00	E, F, G, H	1	X
N	20	6421 4280	CASE/UPPER KEYBOARD	HOU-01-ZX455-01	I, J, K, L	1	X
N	20	6421 4290	CASE/UPPER KEYBOARD	HOU-01-ZX455-02	M, N, O, P	1	X
	21	6419 6340	HINGE RUBBER	HIN-01-ZX876	Common	1	X
N	22	6421 4300	RUBBER/KEY (57-KEY)	KEY-04-ZX455B-0	E, F, G, H	1	C
N	22	6421 4310	RUBBER/KEY (57-KEY)	KEY-04-ZX455B-1	I, J, K, L	1	C
N	22	6421 4320	RUBBER/KEY (57-KEY)	KEY-04-ZX455B-2	M, N, O, P	1	C
	23	6419 6400	NUT	NUT-02-M1.7	Common	2	X
N	24	6421 4140	SPRING/BATTERY	BAC-01-ZX877-	Common	1	X
N	25	6421 4150	SPRING/BATTERY	BAC-01-ZX877+/-	Common	1	X
N	26	6421 4160	SPRING/BATTERY	BAC-01-ZX877+	Common	1	X
	27	6419 6140	KNOB	LOC-01-ZX876-02	Common	1	C
	28	3122 3508	BUZZER	BUZ-02-27	Common	1	C
N	29	3851 2081	PANEL/DISPLAY	LEN-01-ZX455-00	E, G	1	B
N	29	3851 2082	PANEL/DISPLAY	LEN-01-ZX455-01	F, H	1	B
N	29	3851 2083	PANEL/DISPLAY	LEN-01-ZX455-02	I, K	1	B
N	29	3851 2084	PANEL/DISPLAY	LEN-01-ZX455-03	J, L	1	B
N	29	3851 2085	PANEL/DISPLAY	LEN-01-ZX455-04	M, O	1	B
N	29	3851 2086	PANEL/DISPLAY	LEN-01-ZX455-05	N, P	1	B
N	30	6421 4010	CASE/LOWER DISPLAY	HOU-03-ZX876-03	Common	1	X
N	31	6421 4020	PLATE	INL-01-ZX455-00	E, G	1	X
N	31	6421 4030	PLATE	INL-01-ZX455-01	F, H	1	X
N	31	6421 4040	PLATE	INL-01-ZX455-02	I, K	1	X
N	31	6421 4050	PLATE	INL-01-ZX455-03	J, L	1	X
N	31	6421 4060	PLATE	INL-01-ZX455-04	M, O	1	X
N	31	6421 4070	PLATE	INL-01-ZX455-05	N, P	1	X
	32	6419 5820	SCREW	SCR-01-1740PMTB	Common	1	C
	33	6419 5840	SCREW	SCR-01-1740CMT	Common	1	C
N	34	6421 4090	CUSHION	SPO-01-301005	Common	1	C
N	35	6421 4130	COVER/BATTERY	BAD-01-ZX876-03	Common	1	C
N	36	6421 4120	COVER/BATTERY	BAD-02-ZX876-03	Common	1	C
OTHERS (FA-128)							
N	37	1014 9841	FLOPPY DISK/3.5INCH	DIS-02-ZX491-1	E, F, I, J, M, N	1	C
N	38	1014 9842	FLOPPY DISK/3.5INCH	DIS-02-ZX491-2	E, F, I, J, M, N	1	C
N	39	3719 5396	CABLE/COMMUNICATION	WIR-07-ZX491	E, F, I, J, M, N	1	C
		Parts prices will be informed separately by Parts Price List.					

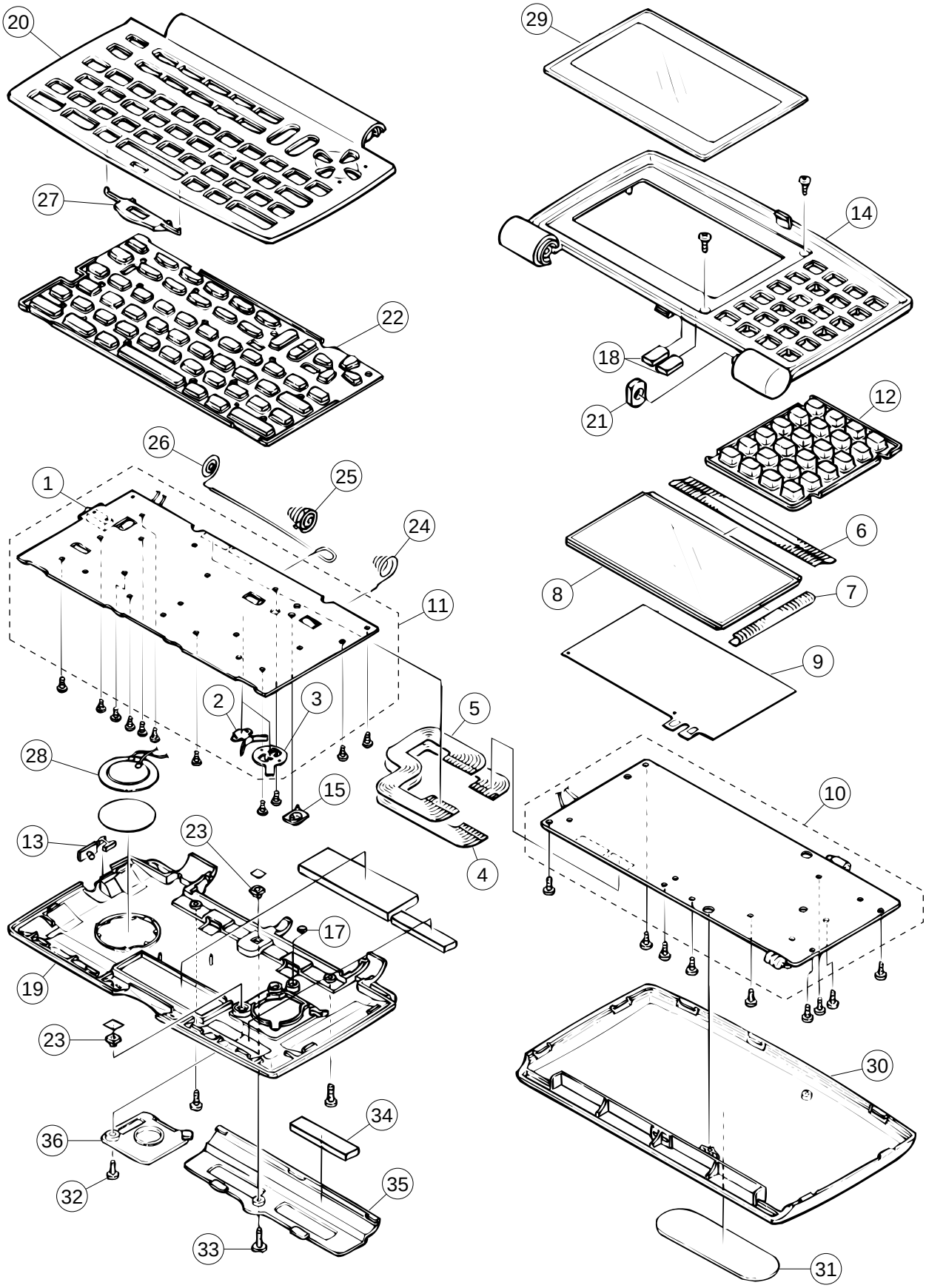
Notes: N-New parts
R-Rank

R- A: Essential
B: Stock recommended
C: Others
X: No stock recommended

*Item 37+38+39+User's Guide for FA-128=FA-128

E: SF-5590SY PLUS (include PC Link Floppy disk & Cable)
F: SF-5590SY PLUS (B.O.S.S. for E)
G: SF-5590SY (not include PC Link Floppy disk & Cable)
H: SF-5590SY (B.O.S.S. for G)
I: SF-5790SY PLUS (include PC Link Floppy disk & Cable)
J: SF-5790SY PLUS (B.O.S.S. for I)
K: SF-5790SY (not include PC Link Floppy disk & Cable)
L: SF-5790SY (B.O.S.S. for K)
M: SF-5990SY PLUS (include PC Link Floppy disk & Cable)
N: SF-5990SY PLUS (B.O.S.S. for M)
O: SF-5990SY (not include PC Link Floppy disk & Cable)
P: SF-5990SY (B.O.S.S. for O)

10. EXPLODED VIEW



CASIO COMPUTER CO.,LTD.
Service Division

8-11-10, Nishi-Shinjuku
Shinjuku-ku, Tokyo 160, Japan
Telephone: 03-3347-4926

MA0900571A